



THE WHITMAN COMPANIES, INC.

*Setting the Standard in
Environmental Engineering & Management*

FINAL REMEDIAL INVESTIGATION REPORT

FOR

ROCKAWAY BOROUGH WELL FIELD SITE
OPERABLE UNIT #3
FOR PROPERTY OF
KLOCKNER & KLOCKNER
ROCKAWAY BOROUGH, NEW JERSEY

VOLUME 7
LABORATORY QA/QC DATA PACKAGE
10/8/98 - JOB #I051

SUBMITTED TO
USEPA-REGION II
EMERGENCY & REMEDIAL RESPONSE DIVISION
NEW YORK, NEW YORK

SUBMITTED BY
THE WHITMAN COMPANIES, INC.
ON BEHALF OF KLOCKNER & KLOCKNER

IN ACCORDANCE WITH
ADMINISTRATIVE ORDER ON CONSENT
INDEX NO. II-CERCLA-95-0104

305359

MAY 2004

116 Tices Lane, Unit B-1, East Brunswick, NJ 08816
www.whitmanco.com

ENVIROTECH RESEARCH, INC.

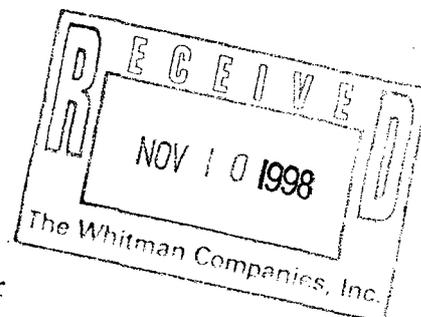
777 New Durham Road
Edison, New Jersey 08817
Tel: (732) 549-3900
Fax: (732) 549-3679
www.enviro-lab.com

November 5, 1998

The Whitman Companies, Inc.
44 West Ferris Street
East Brunswick, NJ 08816

Attention: Mr. Michael Metlitz

Re: Job No. I051 - Klockner & Klockner



Dear Mr. Metlitz:

Enclosed are the results you requested for the following sample(s) received at our laboratory on October 09, 1998:

<u>Lab No.</u>	<u>Client ID</u>	<u>Analysis Required</u>
89298	UST-1	Purgeable Halocarbons

If you have any questions please contact your Project Manager, Robert McGrady, at (732) 549-3900.

Very truly yours,

A handwritten signature in black ink, appearing to be "MJ Urban".

Michael J. Urban
Laboratory Manager

305360

TABLE OF CONTENTS

	<u>Section</u>	<u>Page</u>
Analytical Results Summary	1	1
General Information	2	
Chain of Custody		2
Laboratory Chronicles		3
Methodology Review		4
Data Reporting Qualifiers		7
Non-Conformance Summary		8
GC/ELCD Forms and Data	3	
Results Summary and Chromatograms		10
Method Blank Results Summary		12
Standards Summary		15
Surrogate Compound Recovery Summary		30
Spike Recovery Summary		31

ENVIROTECH RESEARCH, INC.

Client ID: UST-1
Site: Klockner & Klockner

Lab Sample No: 89298
Lab Job No: I051

Date Sampled: 10/08/98
Date Received: 10/09/98
Date Analyzed: 10/22/98
GC Column: DB624
Instrument ID: VOAGC1.i
Lab File ID: geld9631.d

Matrix: SOIL
Level: HIGH
Sample Weight: 1 g
Methanol Ext. Volume: 10.0 ml
Ext. Dilution Factor: 2500.0
% Moisture: 0.0

VOLATILE ORGANICS - GC/ELCD METHOD 8021B

<u>Parameter</u>	Analytical Results	Quantitation
	Units: ug/kg (Dry Weight)	Limit Units: ug/kg
Dichlorodifluoromethane	ND	23600
Chloromethane	ND	23600
Vinyl Chloride	ND	23600
Bromomethane	ND	23600
Chloroethane	ND	23600
Trichlorofluoromethane	ND	23600
1,1-Dichloroethene	ND	23600
Methylene Chloride	ND	23600
trans-1,2-Dichloroethene	ND	23600
1,1-Dichloroethane	ND	23600
cis-1,2-Dichloroethene	ND	23600
Chloroform	ND	23600
1,1,1-Trichloroethane	ND	23600
Carbon Tetrachloride	ND	23600
1,2-Dichloroethane	ND	23600
Trichloroethene	ND	23600
1,2-Dichloropropane	ND	23600
Bromodichloromethane	ND	23600
2-Chloroethyl Vinyl Ether	ND	23600
cis-1,3-Dichloropropene	ND	23600
trans-1,3-Dichloropropene	ND	23600
1,1,2-Trichloroethane	ND	23600
Tetrachloroethene	ND	23600
Dibromochloromethane	ND	23600
Chlorobenzene	ND	23600
Bromoform	ND	23600
1,1,2,2-Tetrachloroethane	ND	23600
1,3-Dichlorobenzene	ND	23600
1,4-Dichlorobenzene	ND	23600
1,2-Dichlorobenzene	ND	23600

305362

**INTERNAL CUSTODY RECORD
AND
LABORATORY CHRONICLE
ENVIROTECH RESEARCH, INC.**

777 NEW DURHAM ROAD, EDISON, NJ
08817
(732) 549-3900

Job No: I051

Site: Klockner & Klockner

Client: The Whitman Companies, Inc.

VOAGC

8021B

Lab Sample ID	Date Sampled	Date Received	Preparation Date	Technician's Name	Analysis Date	Analyst's Name	QA Batch
<u>ORGANIC</u>							
89298	10/8/1998	10/09/1998			10-22-98	KB	3701

305364

Analytical Methodology Summary

Volatile Organics:

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 624. Drinking water samples are analyzed by EPA Method 524.2. Solid samples are analyzed for volatile organics as specified in the EPA publication "Test Methods for Evaluating Solid Waste" (SW-846, 3rd Edition) Method 8260B. Water samples are analyzed for volatile organics by purge and trap GC/PID and GC/ELCD as specified in EPA Methods 601 and 602. Solid samples are analyzed by GC/PID and GC/ELCD in accordance with SW-846, 3rd Edition Method 8021B.

Acid and Base/Neutral Extractable Organics:

Unless otherwise specified, water samples are analyzed for acid and/or base/neutral extractable organics by GC/MS in accordance with EPA Method 625. Solids are analyzed for acid and/or base/neutral extractable organics as specified in the EPA publication "Test Methods for Evaluating Solid Waste" (SW-846, 3rd Edition) Method 8270C.

GC/MS Nontarget Compound Analysis:

Analysis for nontarget compounds is conducted, upon request, in conjunction with GC/MS analyses by EPA Methods 624, 625, 8260B and 8270C. Nontarget compound analysis is conducted using a forward library search of the EPA/NIH/NBS mass spectral library of compounds at the greatest apparent concentration (10% or greater of the nearest internal standard) in each organic fraction (15 for volatile, 15 for base/neutrals and 10 for acid extractables).

Organochlorine Pesticides and PCBs:

Unless otherwise specified, water samples are analyzed for organochlorine pesticides and PCBs by dual column gas chromatography with electron capture detectors as specified in EPA Method 608. Solid samples are analyzed as specified in the EPA publication "Test Methods for Evaluating Solid Waste" (SW-846, 3rd Edition) Method 8081A for organochlorine pesticides and Method 8082 for PCBs.

Total Petroleum Hydrocarbons:

Water samples are analyzed for petroleum hydrocarbons by I.R. using EPA Method 418.1. Solid samples are prepared for analysis by soxhlet extraction consistent with the March 1990 N.J. DEP "Remedial Investigation Guide" Appendix A, page 52, and analyzed by U.S. EPA Method 418.1

305365

Metals Analysis:

Metals analyses are performed by any of four techniques specified by a Method Code provided on each data report page, as follows:

- P - Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP)
- A - Flame Atomic Absorption
- F - Furnace Atomic Absorption
- CV - Manual Cold Vapor (Mercury)

Water samples are digested and analyzed using EPA methods provided in "Methods for Chemical Analysis of Water and Wastewater" (EPA 600/4-79-020). Solid samples are analyzed as specified in the EPA publication "Test Methods for Evaluating Solid Waste" (SW-846, 3rd Edition); samples are digested according to Method 3050B "Acid Digestion of Soil, Sediments and Sludges."

Specific method references for ICP analyses are water Method 200.7 and solid Method 6010B. Mercury analyses are conducted by the manual cold vapor technique specified by water Method 245.1 and solid Method 7471A. Other specific Atomic Absorption method references are as follows:

Element	Water Test Method		Solid Test Method	
	Flame	Furnace	Flame	Furnace
Aluminum	202.1	202.2	7020	--
Antimony	204.1	204.2	7040	7041
Arsenic	--	206.2	--	7060
Barium	208.1	--	7080	--
Beryllium	210.1	210.2	7090	7091
Cadmium	213.1	213.2	7130	7131
Calcium	215.1	--	7140	--
Chromium, Total	218.1	218.2	7190	7191
Chromium, (+6)	218.4	218.5	7197	7195
Cobalt	219.1	219.2	7200	7201
Copper	220.1	220.2	7210	--
Iron	236.1	236.2	7380	--
Lead	239.1	239.2	7420	7421
Magnesium	242.1	--	7450	--
Manganese	243.1	243.2	7460	--
Nickel	249.1	249.2	7520	--
Potassium	258.1	--	7610	--
Selenium	--	270.2	--	7740
Silver	272.1	272.2	7760	--
Sodium	273.1	--	7770	--
Tin	283.1	283.2	7870	--
Thallium	279.1	279.2	7840	7841
Vanadium	286.1	286.2	7910	7911
Zinc	289.1	289.2	7950	--

Cyanide:

Water samples are analyzed for cyanide using EPA Method 335.3. Cyanide is determined in solid samples as specified in the EPA Contract Laboratory Program IFB dated July 1988, revised February 1989.

305366

Phenols:

Water samples are analyzed for total phenols using EPA Method 420.2. Total phenols are determined in solid samples by preparing the sample as outlined in the EPA Contract Laboratory Program IFB for cyanide, followed by a phenols determination using EPA Method 420.1.

Cleanup of Semivolatile Extracts:

Upon request Method 3611B Alumina Column Cleanup and/or Method 3650B Acid-Base Partition Cleanup are performed to improve detection limits by the removal of saturated hydrocarbon interferences.

Hazardous Waste Characteristics:

Samples for hazardous waste characteristics are analyzed as specified in the U.S. EPA publication "Test Methods for Evaluating Solid Waste" (SW-846, 3rd Edition). Specific method references are as follows:

- Ignitability - Method 1020A
- Corrosivity - Water pH Method 9040B
Soil pH Method 9045C
- Reactivity - Chapter 7, Section 7.3.3 and 7.3.4
respectively for hydrogen cyanide and
hydrogen sulfide release
- Toxicity - TCLP Method 1311

Miscellaneous Parameters:

Additional analyses performed on both aqueous and solid samples are in accordance with methods published in the following references:

- Test Methods for Evaluating Solid Wastes, SW-846 3rd Edition, November 1986.
- Standard Methods for the Examination of Water and Wastewater, 17th Edition.
- Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, 1979.

DATA REPORTING QUALIFIERS

- ND - The compound was not detected at the indicated concentration.

- B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.

- P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

- * - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

305368

NON-CONFORMANCE SUMMARY

Envirotech Research, Inc. Job Number: I051

Volatile Organics Analysis:

All data conforms with method requirements ____; or
Analysis was not requested ____; or
Non-conformance for the specific samples listed is as follows:

Sample 89298: High dilution necessary due to non-
halogenated volatile organics

See continuation page if checked ()

Base/Neutral and/or Acid Extractable Organics:

All data conforms with method requirements ____; or
Analysis was not requested ✓; or
Non-conformance for the specific samples listed is as follows:

See continuation page if checked ()

PCBs and/or Organochlorine Pesticides:

All data conforms with method ✓ requirements ____; or
Analysis was not requested ____; or
Non-conformance for the specific samples listed is as follows:

See continuation page if checked ()

Non-conformance Summary, Page 2 of 2
Envirotech Research, Inc. Job Number: IOS1

Metals Analysis:

All data conforms with method requirements _____; or
Analysis was not requested ✓; or
Non-conformance for the specific samples listed is as follows:

See continuation page if checked ()

Total Petroleum Hydrocarbons:

All data conforms with method requirements _____; or
Analysis was not requested ✓; or
Non-conformance for the specific samples listed is as follows:

See continuation page if checked ()

General Chemistry/Disposal Parameters:

All data conforms with method requirements _____; or
Analysis was not requested ✓; or
Non-conformance for the specific samples listed is as follows:

See continuation page if checked ()

Signature of
Laboratory Manager: 

Date: 11/5/98

305370

Client ID: UST-1
Site: Klockner & Klockner

Lab Sample No: 89298
Lab Job No: I051

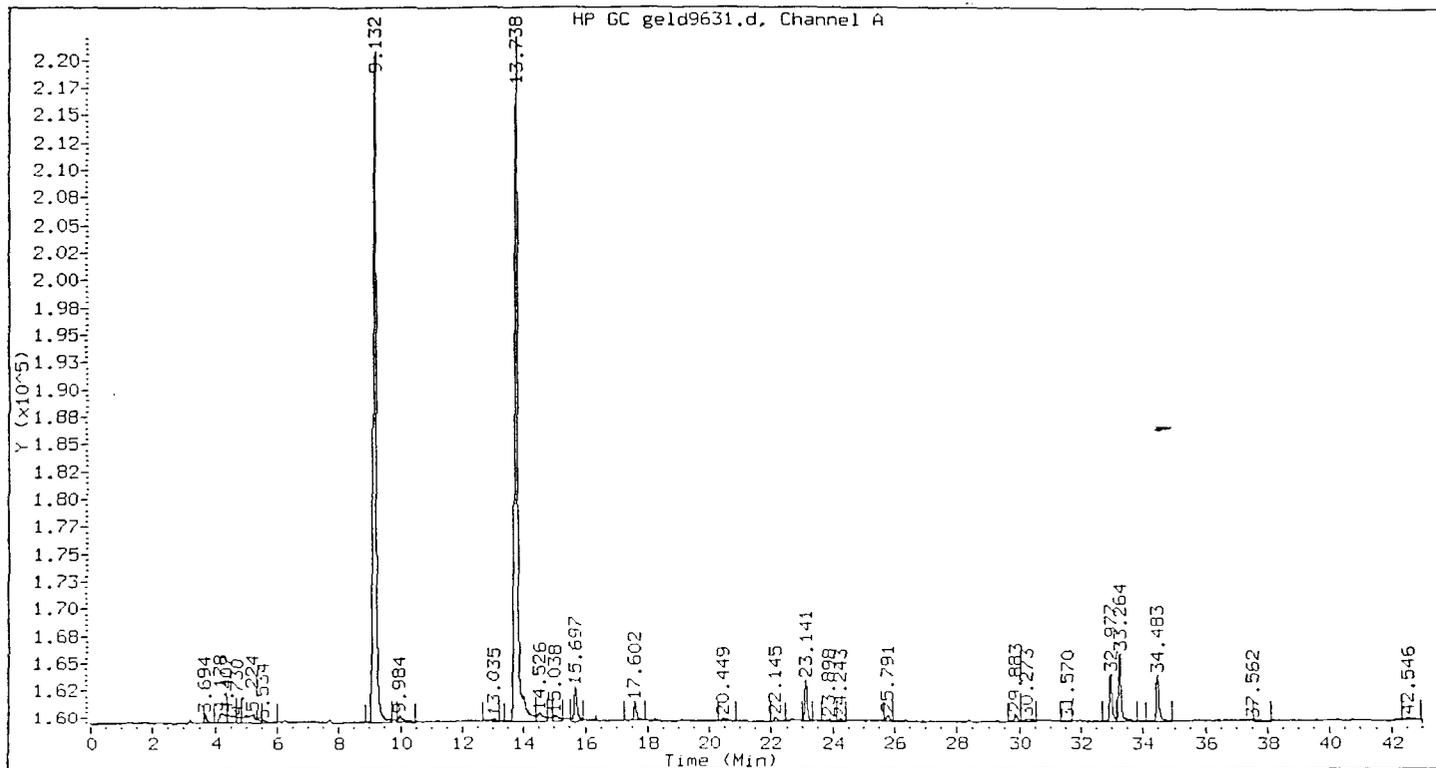
Date Sampled: 10/08/98
Date Received: 10/09/98
Date Analyzed: 10/22/98
GC Column: DB624
Instrument ID: VOAGC1.i
Lab File ID: geld9631.d

Matrix: SOIL
Level: HIGH
Sample Weight: 1 g
Methanol Ext. Volume: 10.0 ml
Ext. Dilution Factor: 2500.0
% Moisture: 0.0

VOLATILE ORGANICS - GC/ELCD
METHOD 8021B

<u>Parameter</u>	<u>Analytical Results</u> Units: ug/kg (Dry Weight)	<u>Quantitation</u> Limit Units: ug/kg
Dichlorodifluoromethane	ND	23600
Chloromethane	ND	23600
Vinyl Chloride	ND	23600
Bromomethane	ND	23600
Chloroethane	ND	23600
Trichlorofluoromethane	ND	23600
1,1-Dichloroethene	ND	23600
Methylene Chloride	ND	23600
trans-1,2-Dichloroethene	ND	23600
1,1-Dichloroethane	ND	23600
cis-1,2-Dichloroethene	ND	23600
Chloroform	ND	23600
1,1,1-Trichloroethane	ND	23600
Carbon Tetrachloride	ND	23600
1,2-Dichloroethane	ND	23600
Trichloroethene	ND	23600
1,2-Dichloropropane	ND	23600
Bromodichloromethane	ND	23600
2-Chloroethyl Vinyl Ether	ND	23600
cis-1,3-Dichloropropene	ND	23600
trans-1,3-Dichloropropene	ND	23600
1,1,2-Trichloroethane	ND	23600
Tetrachloroethene	ND	23600
Dibromochloromethane	ND	23600
Chlorobenzene	ND	23600
Bromoform	ND	23600
1,1,2,2-Tetrachloroethane	ND	23600
1,3-Dichlorobenzene	ND	23600
1,4-Dichlorobenzene	ND	23600
1,2-Dichlorobenzene	ND	23600

305371



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : 89298;;2500
 Lab ID : 89298
 Inj Date : 22-OCT-98 15:07:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 2500
 Sample Matrix : SOIL
 Sample Type: SAMPLE

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====

305372

VOLATILE METHOD BLANK SUMMARY

LAB SAMPLE NO.

GG295

Date Analyzed: 10/22/98

Instrument ID: VOAGC1

Time Analyzed: 1051

Lab File ID: GELD9626

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT ID.	LAB SAMPLE NO	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	UST-1	89298	GELD9631	1507
02	UST-1MS	89298MS	GELD9632	1558
03	UST-1MSD	89298MSD	GELD9633	1648
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

Client ID: GG295
Site:

Lab Sample No: GG295
Lab Job No: I051

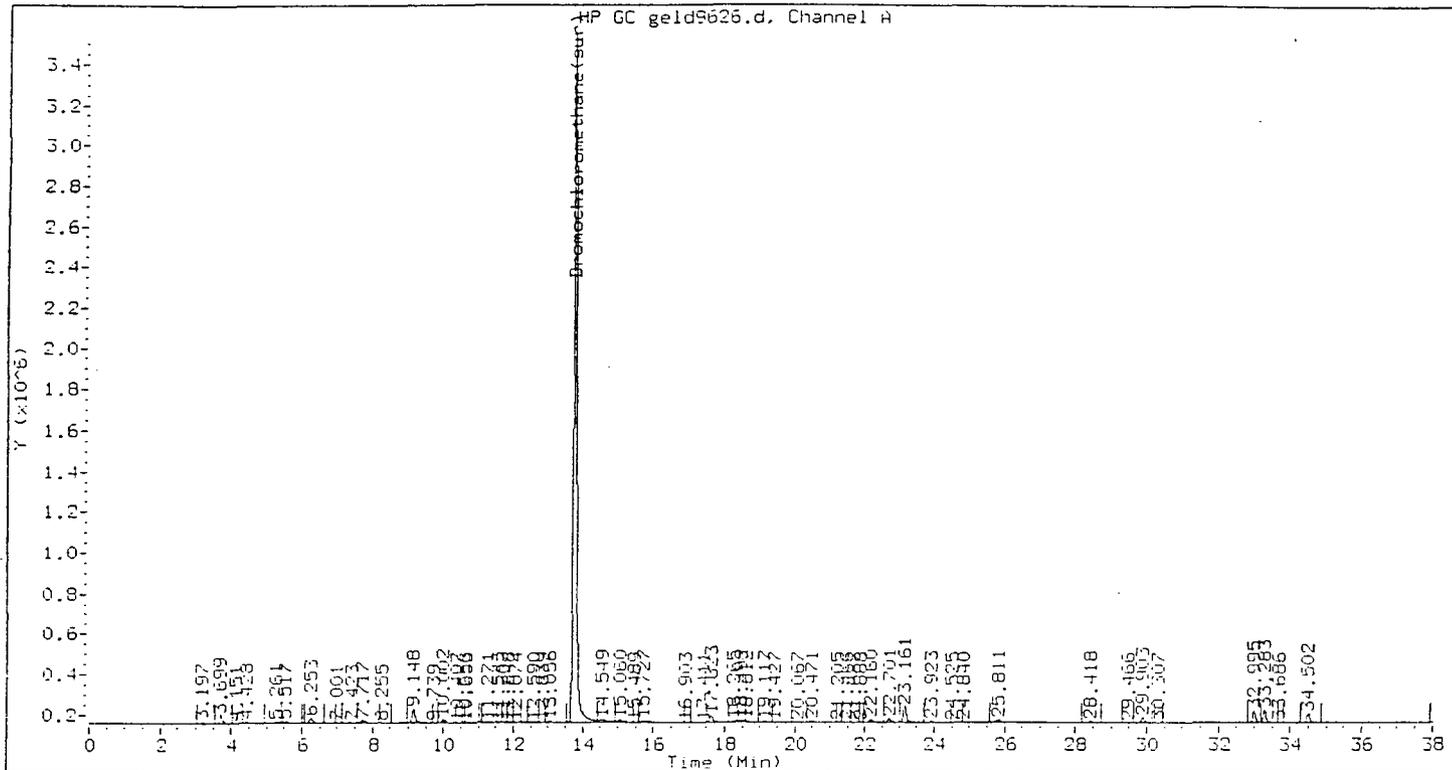
Date Sampled: _____
Date Received: _____
Date Analyzed: 10/22/98
GC Column: DB624
Instrument ID: VOAGC1.i
Lab File ID: geld9626.d

Matrix: SOIL
Level: HIGH
Sample Weight: 10 g
Methanol Ext. Volume: 25.0 ml
Ext. Dilution Factor: 50.0
% Moisture: 0.0

VOLATILE ORGANICS - GC/ELCD
METHOD 8021B

<u>Parameter</u>	<u>Analytical Results</u> Units: ug/kg (Dry Weight)	<u>Quantitation</u> Limit Units: ug/kg
Dichlorodifluoromethane	ND	125
Chloromethane	ND	125
Vinyl Chloride	ND	125
Bromomethane	ND	125
Chloroethane	ND	125
Trichlorofluoromethane	ND	125
1,1-Dichloroethene	ND	125
Methylene Chloride	ND	125
trans-1,2-Dichloroethene	ND	125
1,1-Dichloroethane	ND	125
cis-1,2-Dichloroethene	ND	125
Chloroform	ND	125
1,1,1-Trichloroethane	ND	125
Carbon Tetrachloride	ND	125
1,2-Dichloroethane	ND	125
Trichloroethene	ND	125
1,2-Dichloropropane	ND	125
Bromodichloromethane	ND	125
2-Chloroethyl Vinyl Ether	ND	125
cis-1,3-Dichloropropene	ND	125
trans-1,3-Dichloropropene	ND	125
1,1,2-Trichloroethane	ND	125
Tetrachloroethene	ND	125
Dibromochloromethane	ND	125
Chlorobenzene	ND	125
Bromoform	ND	125
1,1,2,2-Tetrachloroethane	ND	125
1,3-Dichlorobenzene	ND	125
1,4-Dichlorobenzene	ND	125
1,2-Dichlorobenzene	ND	125

305374



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : GG295
 Lab ID : GG295
 Inj Date : 22-OCT-98 10:51:00
 Operator : KB
 Cond Sublist: 501

Inst ID : VOAGC1.i
 Dil Factor : 50
 Sample Matrix : SOIL
 Sample Type: BLANK

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Bromochloromethane(sur)	13.747	13.752	0.005	106864448	26.339	3292.373

305375

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Instrument ID: VOAGC1

Calibration Date(s): 10/21/98 10/22/98

Calibration Time(s): 2330 0810

LAB FILE ID:	RRF1: GELD9618	RRF5: GELD9619	RRF10: GELD9620	RRF20: GELD9623	RRF40: GELD9622
COMPOUND	RRF1	RRF5	RRF10	RRF20	RRF40
Dichlorodifluoromethane	1698929	2013875	1920627	1524235	1732717
Chloromethane	600827	646903	761470	983446	1033018
Vinyl Chloride	2002942	2454624	2603604	2281749	2768872
Bromomethane	1385537	1454552	1564948	1034198	1249516
Chloroethane	3090325	3949558	4237114	2966088	3350713
Trichlorofluoromethane	4666803	6140168	6394439	5516525	5581294
1,1-Dichloroethene	5457054	5773197	6667892	4668874	5471945
Methylene Chloride	9041266	8125234	8881863	6036746	6848261
trans-1,2-Dichloroethene	5790659	6157378	7008862	5218723	5690299
1,1-Dichloroethane	5992021	6394063	7190065	5429320	5865938
cis-1,2-Dichloroethene	4903610	5504897	5793980	5152062	5099475
Chloroform	7767604	8421210	9168702	7063520	7296020
1,1,1-Trichloroethane	6703113	7135818	7698137	6181372	6594538
Carbon Tetrachloride	7372455	7998200	8934706	6997003	7363667
1,2-Dichloroethane	5848256	6037666	6541049	5065022	5373391
Trichloroethene	6789783	7273197	8577482	6276286	6650934
1,2-Dichloropropane	5321717	5809583	6412610	4931982	5251497
Bromodichloromethane	5466895	5657817	6246674	5007731	5212422
2-Chloroethyl Vinyl Ether	1583140	1984873	2019077	1578097	1814251
cis-1,3-Dichloropropene	4829375	5303299	5688915	4731274	4768172
trans-1,3-Dichloropropene	4175113	4962565	5278946	4475313	4302507
1,1,2-Trichloroethane	5576888	6668783	7000924	5549519	5502098
Tetrachloroethene	6188830	7157426	8003575	6317245	6412881
Dibromochloromethane	3667744	4287890	4764722	3802009	4015779
Chlorobenzene	2410697	2764351	3226895	2533123	2705136
Bromoform	2174852	2801858	3064938	2614066	2688100
1,1,2,2-Tetrachloroethane	3509529	4334471	4171051	3920832	3733405
1,3-Dichlorobenzene	3027139	3568268	4264304	3328608	3442339
1,4-Dichlorobenzene	3488647	3848458	4420018	3546205	3570843
1,2-Dichlorobenzene	3307101	3652646	4282624	3438187	3485441
Bromochloromethane (sur)	3169136	4521588	4397950	4081000	4116692

305376

VOLATILE ORGANICS INITIAL CALIBRATION DATA

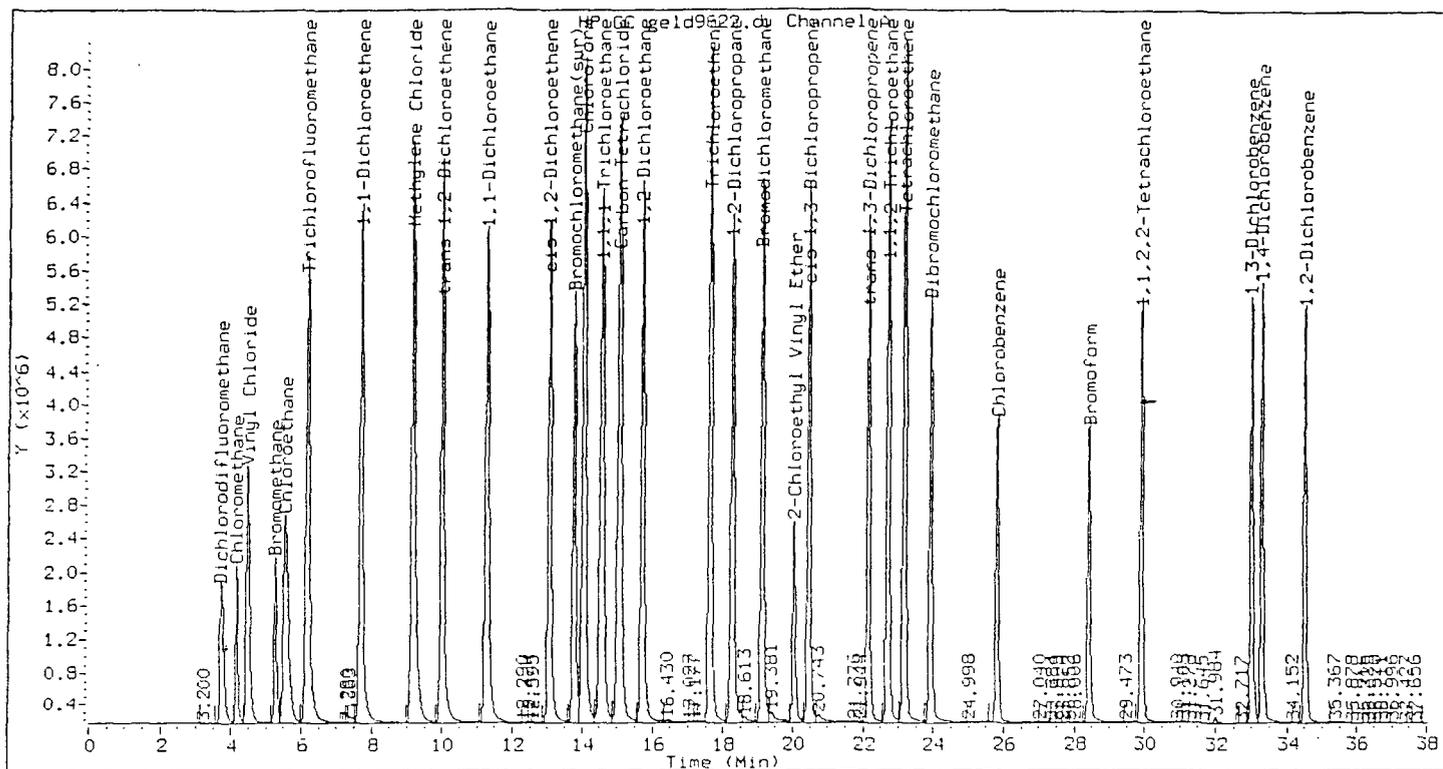
Instrument ID: VOAGC1

Calibration Date(s): 10/21/98 10/22/98

Calibration Time(s): 2330 0810

COMPOUND	CURVE	COEFFICIENT A1	%RSD OR R^2
Dichlorodifluoromethane	AVRG	1778077	11*
Chloromethane	AVRG	805133	24*
Vinyl Chloride	AVRG	2422358	12*
Bromomethane	AVRG	1337750	15*
Chloroethane	AVRG	3518760	16*
Trichlorofluoromethane	AVRG	5659846	12*
1,1-Dichloroethene	AVRG	5607792	13*
Methylene Chloride	AVRG	7786674	17*
trans-1,2-Dichloroethene	AVRG	5973184	11*
1,1-Dichloroethane	AVRG	6174281	11*
cis-1,2-Dichloroethene	AVRG	5290805	6.7*
Chloroform	AVRG	7943411	11*
1,1,1-Trichloroethane	AVRG	6862596	8.4*
Carbon Tetrachloride	AVRG	7733206	9.8*
1,2-Dichloroethane	AVRG	5773077	10.0*
Trichloroethene	AVRG	7113536	12*
1,2-Dichloropropane	AVRG	5545478	10*
Bromodichloromethane	AVRG	5518308	8.6*
2-Chloroethyl Vinyl Ether	AVRG	1795888	12*
cis-1,3-Dichloropropene	AVRG	5064207	8.3*
trans-1,3-Dichloropropene	AVRG	4638889	10*
1,1,2-Trichloroethane	AVRG	6059642	12*
Tetrachloroethene	AVRG	6815991	11*
Dibromochloromethane	AVRG	4107629	11*
Chlorobenzene	AVRG	2728040	11*
Bromoform	AVRG	2668763	12*
1,1,2,2-Tetrachloroethane	AVRG	3933858	8.4*
1,3-Dichlorobenzene	AVRG	3526132	13*
1,4-Dichlorobenzene	AVRG	3774834	10*
1,2-Dichlorobenzene	AVRG	3633200	10*
Bromochloromethane (sur)	AVRG	4057273	13*

* Compounds with required maximum %RSD values.



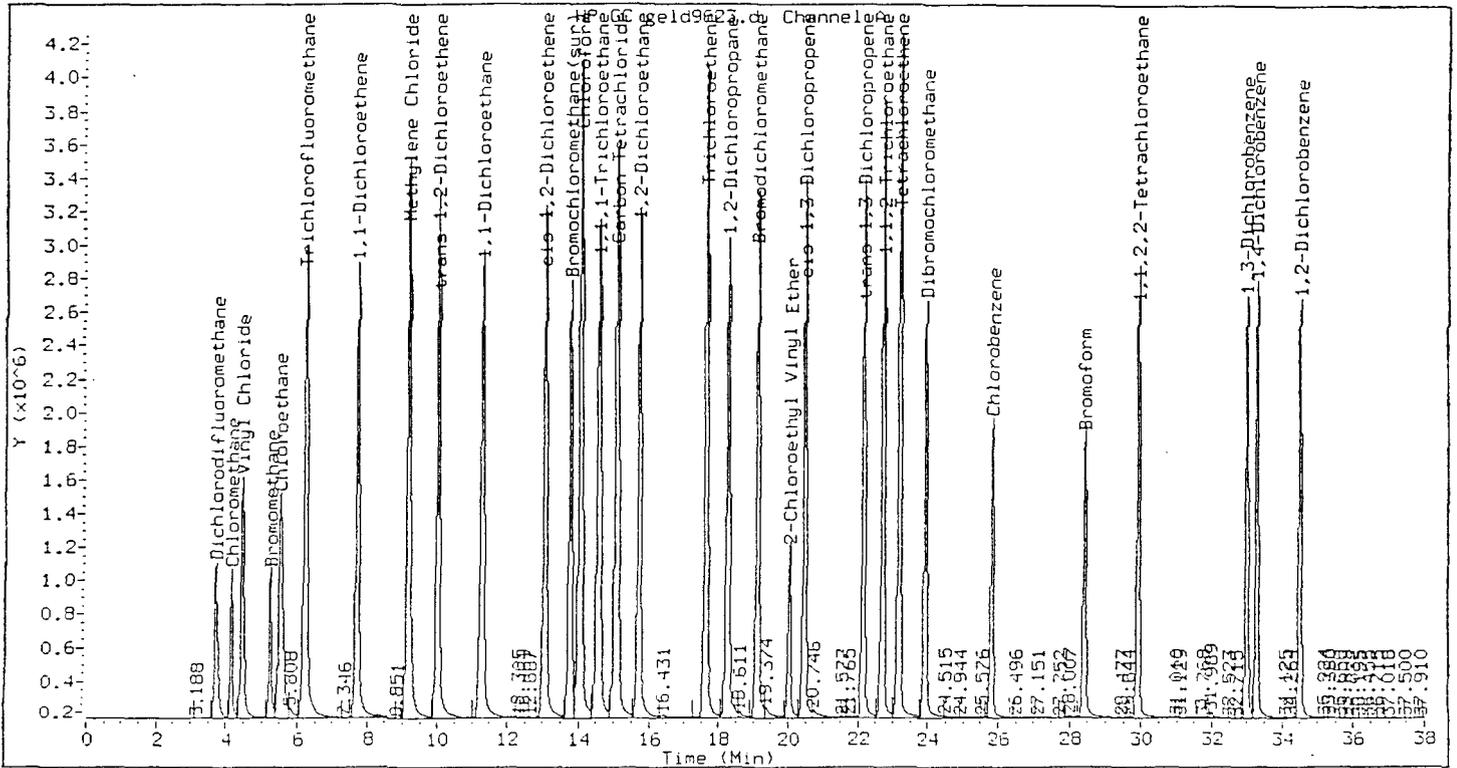
Method : /chem/VOAGC1.i/8021ELCD/10-21-98/21oct98a.b/8021E.m
 Sample Info : GSTD040C
 Lab ID : GSTD040C
 Inj Date : 22-OCT-98 02:27:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CALIB_5

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.704	3.701	0.003	69308684	37.636	37.636
Chloromethane	4.143	4.146	0.003	41320733	54.330	54.330
Vinyl Chloride	4.443	4.433	0.011	110754881	45.068	45.068
Bromomethane	5.235	5.247	0.012	49980654	35.149	35.149
Chloroethane	5.511	5.525	0.014	134028524	36.471	36.471
Trichlorofluoromethane	6.149	6.229	0.080	223251771	38.926	38.926
1,1-Dichloroethene	7.664	7.701	0.038	218877802	37.096	37.096
Methylene Chloride	9.136	9.143	0.007	273930437	33.174	33.174
trans-1,2-Dichloroethene	9.975	9.991	0.016	227611953	36.668	36.668

305378

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====
1,1-Dichloroethane	11.252	11.262	0.010	234637512	36.508	36.508
cis-1,2-Dichloroethene	13.037	13.043	0.007	203978984	37.813	37.813
Chloroform	14.030	14.030	0.000	291840796	35.496	35.496
1,1,1-Trichloroethane	14.543	14.548	0.005	263781527	37.159	37.159
Carbon Tetrachloride	15.053	15.059	0.006	294546684	36.804	36.804
1,2-Dichloroethane	15.703	15.707	0.004	214935659	35.466	35.466
Trichloroethene	17.610	17.614	0.004	266037354	36.027	36.027
1,2-Dichloropropane	18.251	18.252	0.001	210059871	36.605	36.605
Bromodichloromethane	19.105	19.104	0.001	208496902	36.708	36.708
2-Chloroethyl Vinyl Ether	20.025	20.030	0.005	72570048	38.495	38.495
cis-1,3-Dichloropropene	20.452	20.453	0.001	190726866	36.818	36.818
trans-1,3-Dichloropropene	22.137	22.139	0.001	172100294	36.436	36.436
1,1,2-Trichloroethane	22.693	22.691	0.002	220083923	35.327	35.327
Tetrachloroethene	23.162	23.163	0.001	256515233	36.603	36.603
Dibromochloromethane	23.912	23.911	0.001	160631167	37.196	37.196
Chlorobenzene	25.807	25.806	0.001	108205439	38.276	38.276
Bromoform	28.405	28.405	0.001	107524011	39.354	39.354
1,1,2,2-Tetrachloroethane	29.904	29.902	0.003	149336215	37.375	37.375
1,3-Dichlorobenzene	32.999	32.997	0.002	137693556	38.405	38.405
1,4-Dichlorobenzene	33.288	33.285	0.003	142833711	36.553	36.553
1,2-Dichlorobenzene	34.507	34.505	0.002	139417649	37.290	37.290
Bromochloromethane (sur)	13.748	13.752	0.004	164667661	40.236	40.236

305379



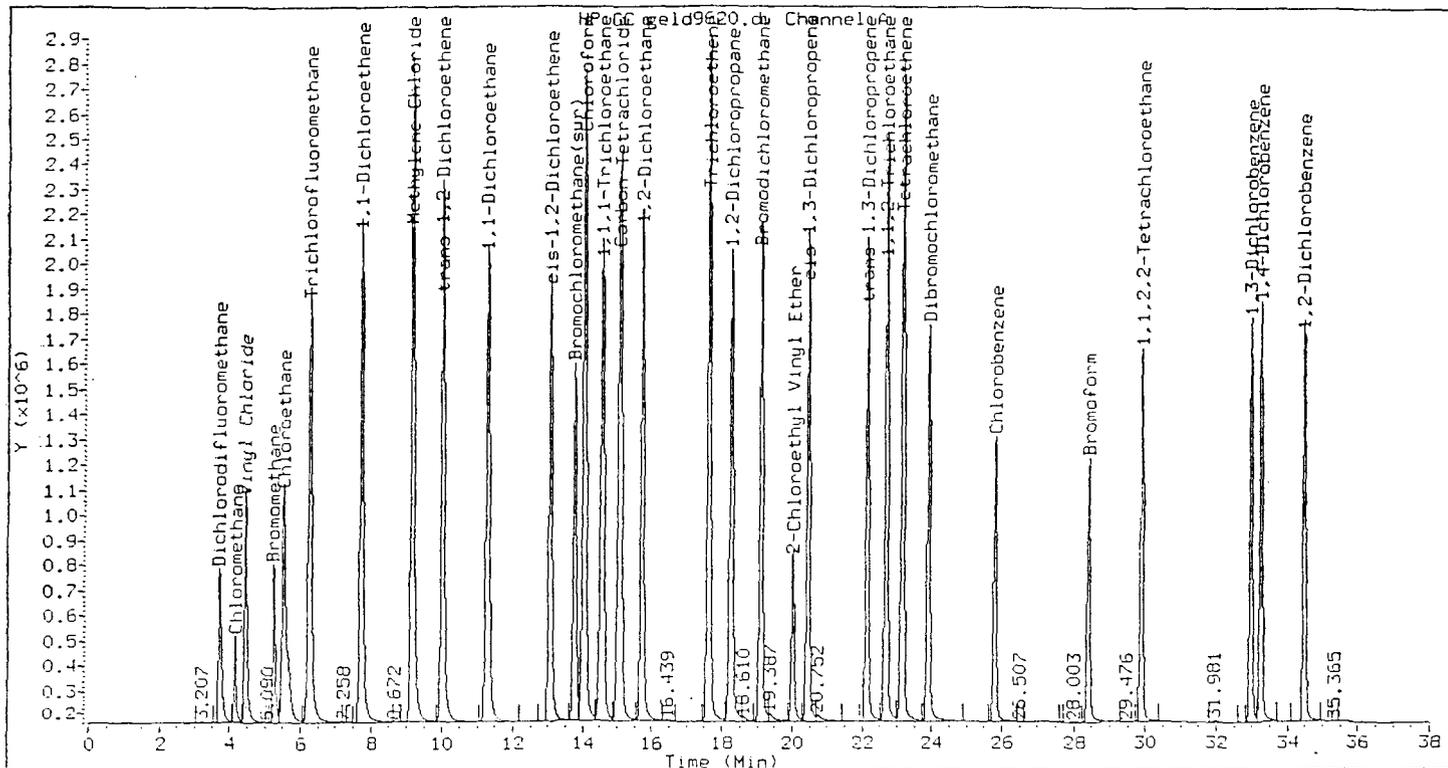
Method : /chem/VOAGC1.i/8021ELCD/10-21-98/21oct98a.b/8021E.m
 Sample Info : GSTD020C
 Lab ID : GSTD020C
 Inj Date : 22-OCT-98 08:10:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CALIB_4

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.685	3.701	0.016	30484698	17.145	17.145
Chloromethane	4.135	4.146	0.011	19668924	24.429	24.429
Vinyl Chloride	4.424	4.433	0.009	45634979	18.839	18.839
Bromomethane	5.223	5.247	0.024	20683965	15.385	15.385
Chloroethane	5.488	5.525	0.037	59321759	16.790	16.790
Trichlorofluoromethane	6.198	6.229	0.031	110330499	19.385	19.385
1,1-Dichloroethene	7.686	7.701	0.015	93377476	16.515	16.515
Methylene Chloride	9.134	9.143	0.009	120734913	15.452	15.452
trans-1,2-Dichloroethene	9.980	9.991	0.011	104374463	17.368	17.368

305380

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====
1,1-Dichloroethane	11.255	11.262	0.008	108586401	17.437	17.437
cis-1,2-Dichloroethene	13.036	13.043	0.007	103041248	19.275	19.275
Chloroform	14.027	14.030	0.003	141270409	17.681	17.681
1,1,1-Trichloroethane	14.545	14.548	0.004	123627432	17.878	17.878
Carbon Tetrachloride	15.056	15.059	0.003	139940068	17.937	17.937
1,2-Dichloroethane	15.703	15.707	0.004	101300447	17.283	17.283
Trichloroethene	17.611	17.614	0.003	125525727	17.525	17.525
1,2-Dichloropropane	18.250	18.252	0.002	98639641	17.686	17.686
Bromodichloromethane	19.104	19.104	0.000	100154627	18.061	18.061
2-Chloroethyl Vinyl Ether	20.027	20.030	0.003	31561938	17.306	17.306
cis-1,3-Dichloropropene	20.453	20.453	0.000	94625472	18.589	18.589
trans-1,3-Dichloropropene	22.139	22.139	0.000	89506266	19.151	19.151
1,1,2-Trichloroethane	22.693	22.691	0.002	110990384	18.214	18.214
Tetrachloroethene	23.166	23.163	0.003	126344900	18.391	18.391
Dibromochloromethane	23.914	23.911	0.004	76040175	18.040	18.040
Chlorobenzene	25.309	25.806	0.003	50662469	18.302	18.302
Bromoform	28.410	28.405	0.004	52281324	19.302	19.302
1,1,2,2-Tetrachloroethane	29.907	29.902	0.005	78416641	19.699	19.699
1,3-Dichlorobenzene	33.003	32.997	0.006	66572160	18.838	18.838
1,4-Dichlorobenzene	33.291	33.285	0.006	70924095	18.492	18.492
1,2-Dichlorobenzene	34.511	34.505	0.006	68763725	18.693	18.693
Bromochloromethane (sur)	13.746	13.752	0.006	81619996	19.955	19.955

305381



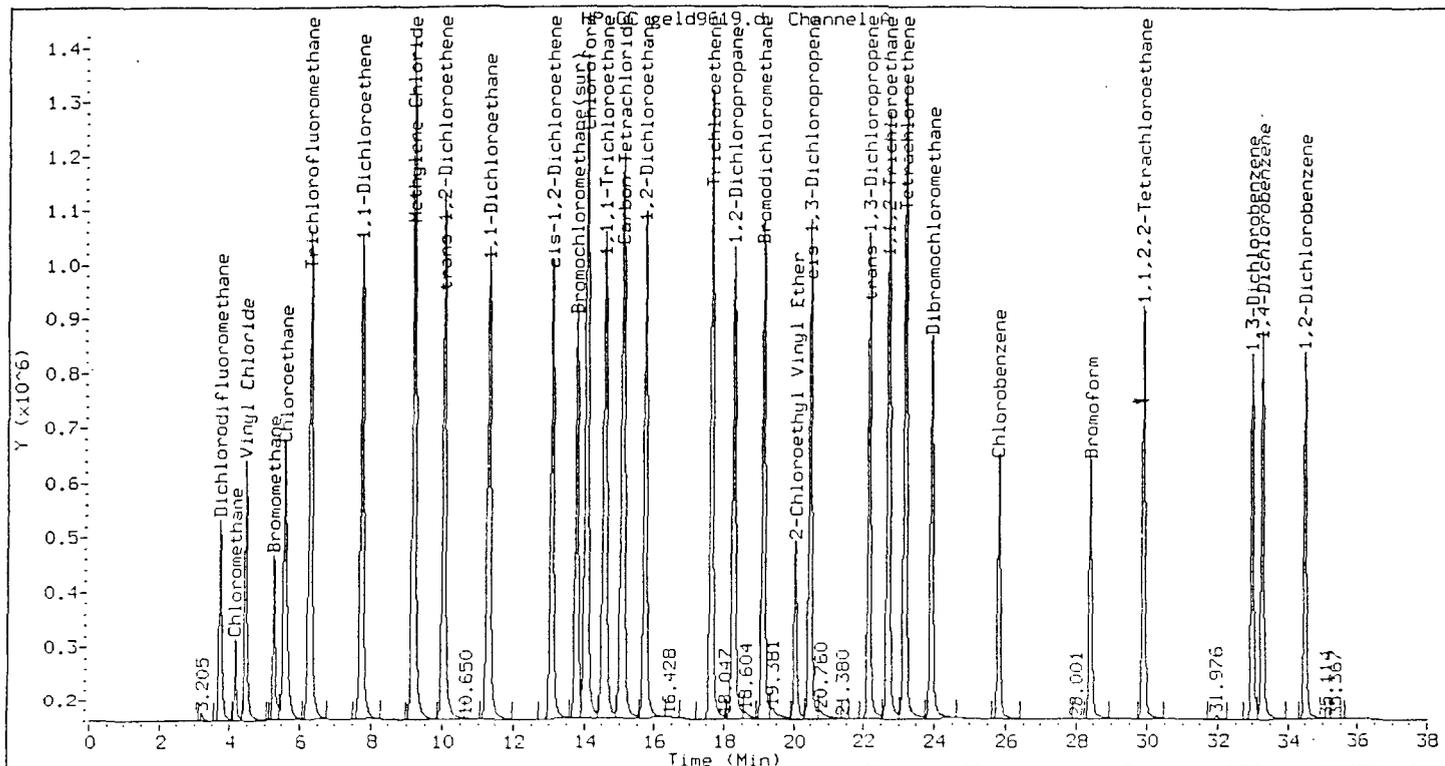
Method : /chem/VOAGC1.i/8021ELCD/10-21-98/21oct98a.b/8021E.m
 Sample Info : GSTD010C
 Lab ID : GSTD010C
 Inj Date : 22-OCT-98 00:58:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CALIB_3

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.708	3.701	0.007	19206268	10.802	10.802
Chloromethane	4.153	4.146	0.007	7614703	9.458	9.458
Vinyl Chloride	4.438	4.433	0.005	26036036	10.748	10.748
Bromomethane	5.247	5.247	0.001	15649481	11.698	11.698
Chloroethane	5.518	5.525	0.007	42371138	12.041	12.041
Trichlorofluoromethane	6.258	6.229	0.029	63944387	11.298	11.298
1,1-Dichloroethene	7.718	7.701	0.016	66678915	11.890	11.890
Methylene Chloride	9.151	9.143	0.008	88818628	11.406	11.406
trans-1,2-Dichloroethene	10.000	9.991	0.009	70088621	11.734	11.734

305382

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
1,1-Dichloroethane	11.270	11.262	0.008	71900646	11.645	11.645
cis-1,2-Dichloroethene	13.050	13.043	0.006	57939800	10.951	10.951
Chloroform	14.035	14.030	0.005	91687025	11.543	11.543
1,1,1-Trichloroethane	14.556	14.548	0.007	76981368	11.218	11.218
Carbon Tetrachloride	15.065	15.059	0.006	89347064	11.554	11.554
1,2-Dichloroethane	15.712	15.707	0.005	65410489	11.330	11.330
Trichloroethene	17.619	17.614	0.005	85774820	12.058	12.058
1,2-Dichloropropane	18.255	18.252	0.004	64126100	11.564	11.564
Bromedichloromethane	19.107	19.104	0.003	62466738	11.320	11.320
2-Chloroethyl Vinyl Ether	20.030	20.030	0.000	20190773	11.243	11.243
cis-1,3-Dichloropropene	20.455	20.453	0.002	56889151	11.234	11.234
trans-1,3-Dichloropropene	22.140	22.139	0.001	52789461	11.380	11.380
1,1,2-Trichloroethane	22.692	22.691	0.001	70009243	11.553	11.553
Tetrachloroethene	23.165	23.163	0.002	80035746	11.742	11.742
Dibromochloromethane	23.910	23.911	0.000	47647218	11.600	11.600
Chlorobenzene	25.806	25.806	0.000	32268949	11.829	11.829
Bromoform	28.405	28.405	0.001	30649381	11.484	11.484
1,1,2,2-Tetrachloroethane	29.901	29.902	0.001	41710508	10.603	10.603
1,3-Dichlorobenzene	32.994	32.997	0.003	42643044	12.093	12.093
1,4-Dichlorobenzene	33.282	33.285	0.003	44200178	11.709	11.709
1,2-Dichlorobenzene	34.503	34.505	0.003	42826243	11.787	11.787
Bromochloromethane (sur)	13.758	13.752	0.006	43979502	10.840	10.840

305383



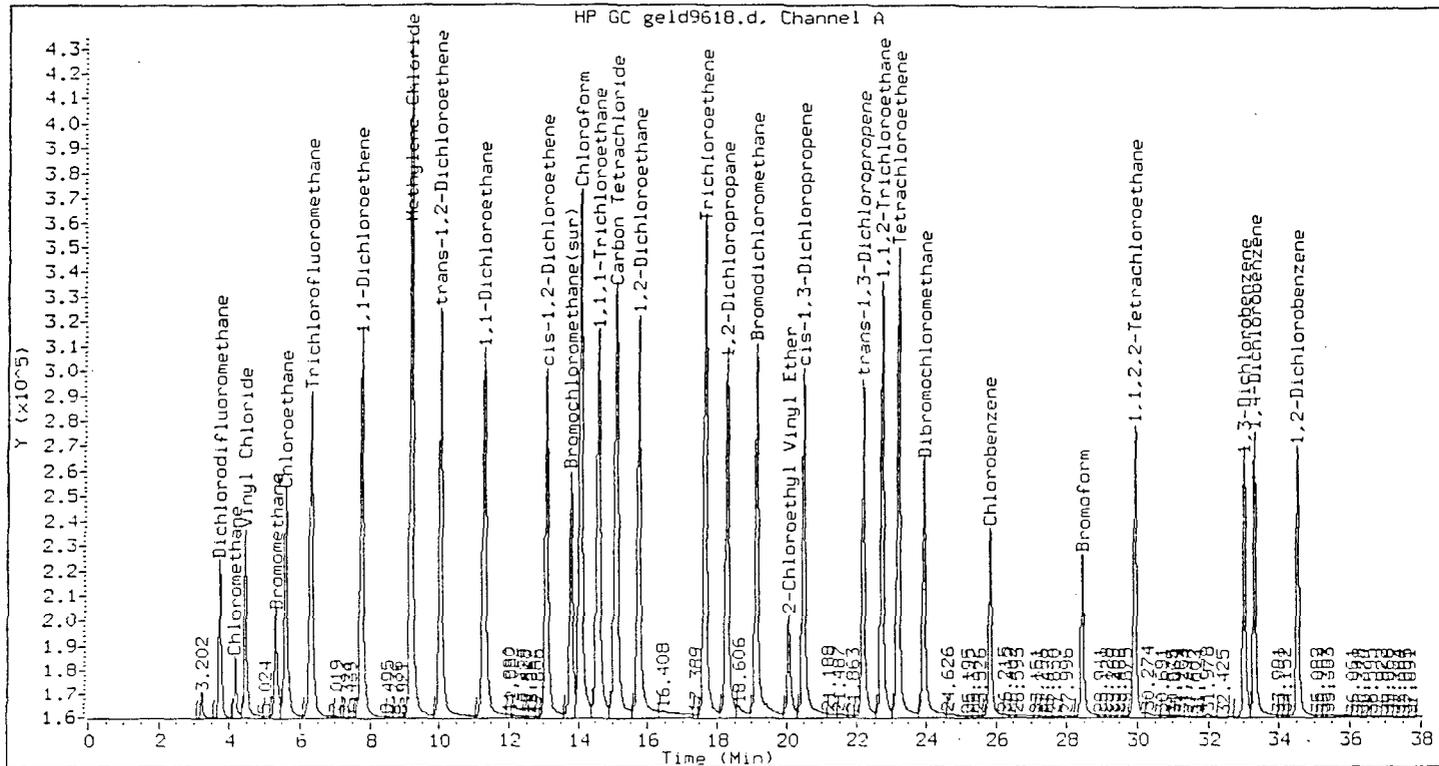
Method : /chem/VOAGC1.i/8021ELCD/10-21-98/21oct98a.b/8021E.m
 Sample Info : GSTD005C
 Lab ID : GSTD005C
 Inj Date : 22-OCT-98 00:14:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CALIB_2

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.705	3.701	0.004	10069376	5.663	5.663
Chloromethane	4.151	4.146	0.005	3234517	4.017	4.017
Vinyl Chloride	4.432	4.433	0.001	12273120	5.067	5.067
Bromomethane	5.244	5.247	0.003	7272758	5.437	5.437
Chloroethane	5.543	5.525	0.018	19747792	5.612	5.612
Trichlorofluoromethane	6.265	6.229	0.036	30700838	5.424	5.424
1,1-Dichloroethene	7.717	7.701	0.016	28865983	5.133	5.133
Methylene Chloride	9.147	9.143	0.004	40626172	5.208	5.208
trans-1,2-Dichloroethene	9.998	9.991	0.007	30786390	5.137	5.137

305384

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
1,1-Dichloroethane	11.265	11.262	0.003	31970316	5.157	5.157
cis-1,2-Dichloroethene	13.045	13.043	0.002	27524486	5.176	5.176
Chloroform	14.029	14.030	0.001	42106050	5.286	5.286
1,1,1-Trichloroethane	14.548	14.548	0.000	35679090	5.180	5.180
Carbon Tetrachloride	15.060	15.059	0.001	39990999	5.150	5.150
1,2-Dichloroethane	15.705	15.707	0.002	30188329	5.195	5.195
Trichloroethene	17.612	17.614	0.001	36365986	5.094	5.094
1,2-Dichloropropane	18.249	18.252	0.002	29047913	5.224	5.224
Bromodichloromethane	19.102	19.104	0.003	28289086	5.114	5.114
2-Chloroethyl Vinyl Ether	20.027	20.030	0.003	9924364	5.485	5.485
cis-1,3-Dichloropropene	20.451	20.453	0.002	26516495	5.223	5.223
trans-1,3-Dichloropropene	22.135	22.139	0.003	24812823	5.332	5.332
1,1,2-Trichloroethane	22.687	22.691	0.004	33343914	5.488	5.488
Tetrachloroethene	23.161	23.163	0.002	35787131	5.231	5.231
Dibromochloromethane	23.907	23.911	0.003	21439448	5.152	5.152
Chlorobenzene	25.803	25.806	0.003	13821754	5.039	5.039
Bromoform	28.402	28.405	0.003	14009291	5.210	5.210
1,1,2,2-Tetrachloroethane	29.897	29.902	0.005	21672355	5.461	5.461
1,3-Dichlorobenzene	32.993	32.997	0.004	17841338	5.055	5.055
1,4-Dichlorobenzene	33.281	33.285	0.004	19242290	5.055	5.055
1,2-Dichlorobenzene	34.500	34.505	0.005	18263232	4.988	4.988
Bromochloromethane (sur)	13.752	13.752	0.000	22607939	5.551	5.551

305385



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/21oct98a.b/8021E.m
 Sample Info : GSTD001C
 Lab ID : GSTD001C
 Inj Date : 21-OCT-98 23:30:00
 Operator : KB
 Cpnd Sublist : 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CALIB_1

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.703	3.701	0.002	1698929	1.000	1.000
Chloromethane	4.148	4.146	0.002	600827	1.000	1.000
Vinyl Chloride	4.427	4.433	0.006	2002942	1.000	1.000
Bromomethane	5.285	5.247	0.038	1385537	1.000	1.000
Chloroethane	5.564	5.525	0.039	3090325	1.000	1.000
Trichlorofluoromethane	6.275	6.229	0.047	4666803	1.000	1.000
1,1-Dichloroethene	7.722	7.701	0.020	5457054	1.000	1.000
Methylene Chloride	9.147	9.143	0.004	9041266	1.000	1.000
trans-1,2-Dichloroethene	10.001	9.991	0.010	5790659	1.000	1.000

305386

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
1,1-Dichloroethane	11.268	11.262	0.006	5992021	1.000	1.000
cis-1,2-Dichloroethene	13.049	13.043	0.006	4903610	1.000	1.000
Chloroform	14.030	14.030	0.000	7767604	1.000	1.000
1,1,1-Trichloroethane	14.550	14.548	0.002	6703113	1.000	1.000
Carbon Tetrachloride	15.062	15.059	0.003	7372455	1.000	1.000
1,2-Dichloroethane	15.712	15.707	0.005	5848256	1.000	1.000
Trichloroethene	17.617	17.614	0.003	6789783	1.000	1.000
1,2-Dichloropropane	18.253	18.252	0.001	5321717	1.000	1.000
Bromodichloromethane	19.104	19.104	0.000	5466895	1.000	1.000
2-Chloroethyl Vinyl Ether	20.040	20.030	0.010	1583140	1.000	1.000
cis-1,3-Dichloropropene	20.455	20.453	0.002	4829375	1.000	1.000
trans-1,3-Dichloropropene	22.142	22.139	0.004	4175113	1.000	1.000
1,1,2-Trichloroethane	22.690	22.691	0.001	5576888	1.000	1.000
Tetrachloroethene	23.161	23.163	0.002	6188830	1.000	1.000
Dibromochloromethane	23.910	23.911	0.001	3667744	1.000	1.000
Chlorobenzene	25.807	25.806	0.000	2410697	1.000	1.000
Bromoform	28.406	28.405	0.001	2174852	1.000	1.000
1,1,2,2-Tetrachloroethane	29.899	29.902	0.002	3509529	1.000	1.000
1,3-Dichlorobenzene	32.997	32.997	0.001	3027139	1.000	1.000
1,4-Dichlorobenzene	33.284	33.285	0.001	3488647	1.000	1.000
1,2-Dichlorobenzene	34.504	34.505	0.001	3307101	1.000	1.000
Bromochloromethane (sur)	13.756	13.752	0.004	3169136	1.000	1.000

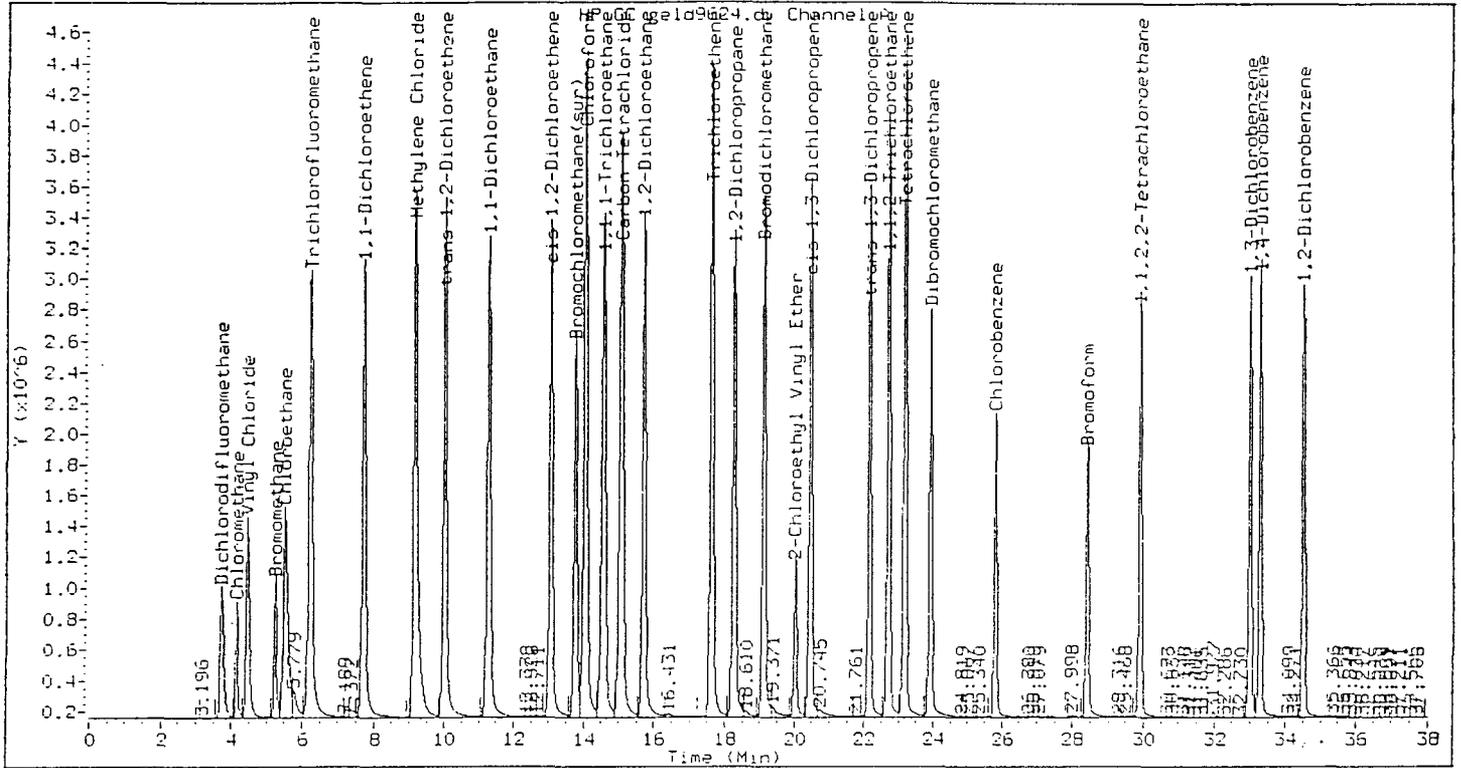
305387

VOLATILE ORGANICS CONTINUING CALIBRATION CHECK

Instrument ID: VOAGC1 Calibration Date: 10/22/98 Time: 0907
 Lab File ID: GELD9624 Init. Calib. Date(s): 10/21/98 10/22/98
 Heated Purge: (Y/N) N Init. Calib. Times: 2330 0810

COMPOUND	RRF	RRF20	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	1778076.6	1494246.9		16.0	15.0
Chloromethane	805133.04	786579.70		2.3	15.0
Vinyl Chloride	2422358.1	2230522.9		7.9	15.0
Bromomethane	1337750.3	1062382.4		20.6	15.0
Chloroethane	3518759.7	2954502.3		16.0	15.0
Trichlorofluoromethane	5659845.7	5586340.2		1.3	15.0
1,1-Dichloroethene	5607792.2	5147826.6		8.2	15.0
Methylene Chloride	7786674.0	6802374.9		12.6	15.0
trans-1,2-Dichloroethene	5973184.2	5691778.4		4.7	15.0
1,1-Dichloroethane	6174281.3	5976089.5		3.2	15.0
cis-1,2-Dichloroethene	5290804.8	5352439.9		-1.0	15.0
Chloroform	7943411.4	7687102.4		3.2	15.0
1,1,1-Trichloroethane	6862595.5	6674005.9		2.7	15.0
Carbon Tetrachloride	7733206.3	7565742.2		2.2	15.0
1,2-Dichloroethane	5773076.9	5420931.7		6.1	15.0
Trichloroethene	7113536.5	6793636.0		4.5	15.0
1,2-Dichloropropane	5545477.7	5389731.3		2.8	15.0
Bromodichloromethane	5518308.0	5382564.2		2.4	15.0
2-Chloroethyl Vinyl Ether	1795887.6	1540146.5		14.2	15.0
cis-1,3-Dichloropropene	5064206.9	5115670.9		-1.0	15.0
trans-1,3-Dichloropropene	4638888.9	4814509.6		-3.6	15.0
1,1,2-Trichloroethane	6059642.5	5837155.7		3.7	15.0
Tetrachloroethene	6815991.3	6908661.0		-1.2	15.0
Dibromochloromethane	4107628.7	4097503.1		0.2	15.0
Chlorobenzene	2728040.4	2817471.4		-3.1	15.0
Bromoform	2668763.0	2652308.7		0.6	15.0
1,1,2,2-Tetrachloroethane	3933857.6	3933626.3		0.0	15.0
1,3-Dichlorobenzene	3526131.6	3775254.0		-6.9	15.0
1,4-Dichlorobenzene	3774834.1	4008761.7		-6.0	15.0
1,2-Dichlorobenzene	3633199.9	3846080.1		-5.8	15.0
Bromochloromethane (sur)	4057273.1	3889475.4		4.1	15.0

305388



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : GSTD020
 Lab ID : GSTD020
 Inj Date : 22-OCT-98 09:07:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 1
 Sample Matrix : SOIL
 Sample Type: CCALIB_4

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.697	3.701	0.004	29884938	16.907	16.807
Chloromethane	4.140	4.146	0.006	15731593	19.539	19.539
Vinyl Chloride	4.431	4.433	0.002	44610457	19.416	18.416
Bromomethane	5.230	5.247	0.017	21247647	15.883	15.883
Chloroethane	5.493	5.525	0.031	59090045	16.793	16.793
Trichlorofluoromethane	6.208	6.229	0.020	111726804	19.740	19.740
1,1-Dichloroethene	7.694	7.701	0.007	102956532	18.360	18.360
Methylene Chloride	9.139	9.143	0.004	136047498	17.472	17.472
trans-1,2-Dichloroethene	9.985	9.991	0.006	113835568	19.058	19.058

305389

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====
1,1-Dichloroethane	11.260	11.262	0.002	119521789	19.358	19.358
cis-1,2-Dichloroethene	13.040	13.043	0.003	107048798	20.233	20.233
Chloroform	14.029	14.030	0.001	153742047	19.355	19.355
1,1,1-Trichloroethane	14.546	14.548	0.002	133480113	19.450	19.450
Carbon Tetrachloride	15.056	15.059	0.003	151314843	19.567	19.567
1,2-Dichloroethane	15.703	15.707	0.004	108418634	18.780	18.780
Trichloroethene	17.612	17.614	0.002	135872720	19.101	19.101
1,2-Dichloropropane	18.250	18.252	0.001	107794626	19.438	19.438
Bromodichloromethane	19.102	19.104	0.002	107651284	19.508	19.508
2-Chloroethyl Vinyl Ether	20.024	20.030	0.005	30802929	17.152	17.152
cis-1,3-Dichloropropene	20.450	20.453	0.003	102313413	20.203	20.203
trans-1,3-Dichloropropene	22.136	22.139	0.003	96290191	20.757	20.757
1,1,2-Trichloroethane	22.689	22.691	0.002	116743114	19.266	19.266
Tetrachloroethene	23.161	23.163	0.002	138173220	20.272	20.272
Dibromochloromethane	23.909	23.911	0.002	81950062	19.951	19.951
Chlorobenzene	25.802	25.806	0.004	56349423	20.656	20.656
Bromoform	28.400	28.405	0.005	53046174	19.877	19.877
1,1,2,2-Tetrachloroethane	29.896	29.902	0.005	78672525	19.999	19.999
1,3-Dichlorobenzene	32.992	32.997	0.005	75505079	21.413	21.413
1,4-Dichlorobenzene	33.279	33.285	0.006	80175234	21.239	21.239
1,2-Dichlorobenzene	34.499	34.505	0.006	76921602	21.172	21.172
Bromochloromethane (sur)	13.750	13.752	0.002	77789507	19.173	19.173

305390

VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Matrix: SOIL

Level: HIGH

Lab Job No: I051

	LAB SAMPLE NO.	SMC1 #	SMC2 #	OTHER	TOT OUT
	=====	=====	=====	=====	=====
01	GG295	88			0
02	89298	0D			0
03	89298MS	0D			0
04	89298MSD	0D			0
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

QC LIMITS

SMC1 = Bromochloromethane (sur (70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY
METHOD 8021

Matrix: SOIL

Matrix Spike - Lab Sample No.: 89298

Level: HIGH

MS Sample from Lab Job No: 22oc

QA Batch: 3701

Compound	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Chloromethane	9430	0.00	0.00	0*	70-130
Vinyl Chloride	9430	0.00	0.00	0*	70-130
Bromomethane	9430	0.00	0.00	0*	70-130
Chloroethane	9430	0.00	0.00	0*	70-130
Trichlorofluoromethane	9430	0.00	0.00	0*	70-130
1,1-Dichloroethene	9430	0.00	0.00	0*	70-130
Methylene Chloride	9430	0.00	0.00	0*	70-130
trans-1,2-Dichloroethene	9430	0.00	0.00	0*	70-130
1,1-Dichloroethane	9430	0.00	0.00	0*	70-130
Chloroform	9430	0.00	0.00	0*	70-130
1,1,1-Trichloroethane	9430	0.00	0.00	0*	70-130
Carbon Tetrachloride	9430	0.00	0.00	0*	70-130
1,2-Dichloroethane	9430	0.00	0.00	0*	70-130
Trichloroethene	9430	0.00	0.00	0*	70-130
1,2-Dichloropropane	9430	0.00	0.00	0*	70-130
Bromodichloromethane	9430	0.00	0.00	0*	70-130
2-Chloroethyl Vinyl Ethe	9430	0.00	0.00	0*	70-130
cis-1,3-Dichloropropene	9430	0.00	0.00	0*	70-130
trans-1,3-Dichloropropen	9430	0.00	0.00	0*	70-130
1,1,2-Trichloroethane	9430	0.00	0.00	0*	70-130
Tetrachloroethene	9430	0.00	0.00	0*	70-130
Dibromochloromethane	9430	0.00	0.00	0*	70-130
Chlorobenzene	9430	0.00	0.00	0*	70-130
Bromoform	9430	0.00	0.00	0*	70-130
1,1,2,2-Tetrachloroethan	9430	0.00	0.00	0*	70-130
1,3-Dichlorobenzene	9430	0.00	0.00	0*	70-130
1,4-Dichlorobenzene	9430	0.00	0.00	0*	70-130
1,2-Dichlorobenzene	9430	0.00	0.00	0*	70-130

305392

Compound	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Chloromethane	9430	0.00	0*	999*	40	70-130
Vinyl Chloride	9430	0.00	0*	999*	40	70-130
Bromomethane	9430	0.00	0*	999*	40	70-130
Chloroethane	9430	0.00	0*	999*	40	70-130
Trichlorofluoromethane	9430	0.00	0*	999*	40	70-130
1,1-Dichloroethene	9430	0.00	0*	999*	40	70-130
Methylene Chloride	9430	0.00	0*	999*	40	70-130
trans-1,2-Dichloroethene	9430	0.00	0*	999*	40	70-130
1,1-Dichloroethane	9430	0.00	0*	999*	40	70-130
Chloroform	9430	0.00	0*	999*	40	70-130
1,1,1-Trichloroethane	9430	0.00	0*	999*	40	70-130
Carbon Tetrachloride	9430	0.00	0*	999*	40	70-130
1,2-Dichloroethane	9430	0.00	0*	999*	40	70-130
Trichloroethene	9430	0.00	0*	999*	40	70-130
1,2-Dichloropropane	9430	0.00	0*	999*	40	70-130
Bromodichloromethane	9430	0.00	0*	999*	40	70-130
2-Chloroethyl Vinyl Ethe	9430	0.00	0*	999*	40	70-130
cis-1,3-Dichloropropene	9430	0.00	0*	999*	40	70-130
trans-1,3-Dichloropropen	9430	0.00	0*	999*	40	70-130
1,1,2-Trichloroethane	9430	0.00	0*	999*	40	70-130
Tetrachloroethene	9430	0.00	0*	999*	40	70-130
Dibromochloromethane	9430	0.00	0*	999*	40	70-130
Chlorobenzene	9430	0.00	0*	999*	40	70-130
Bromoform	9430	0.00	0*	999*	40	70-130
1,1,2,2-Tetrachloroethan	9430	0.00	0*	999*	40	70-130
1,3-Dichlorobenzene	9430	0.00	0*	999*	40	70-130
1,4-Dichlorobenzene	9430	0.00	0*	999*	40	70-130
1,2-Dichlorobenzene	9430	0.00	0*	999*	40	70-130

Column to be used to flag recovery and RPD values with an asterik

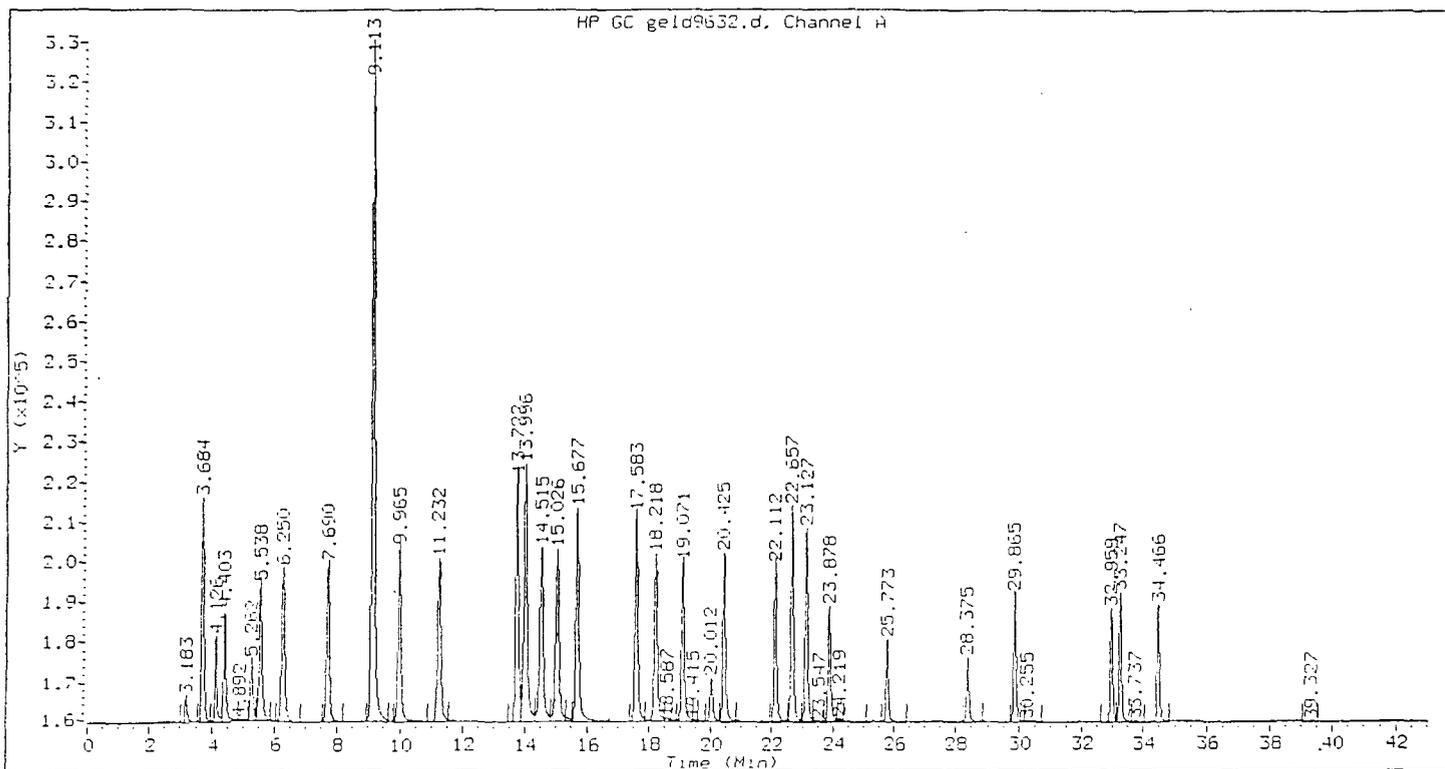
* Values outside of QC limits

RPD: 28 out of 28 outside limits

Spike Recovery: 56 out of 56 outside limits

COMMENTS: high dilution on sample - matrix spike amount diluted below method detection limit.

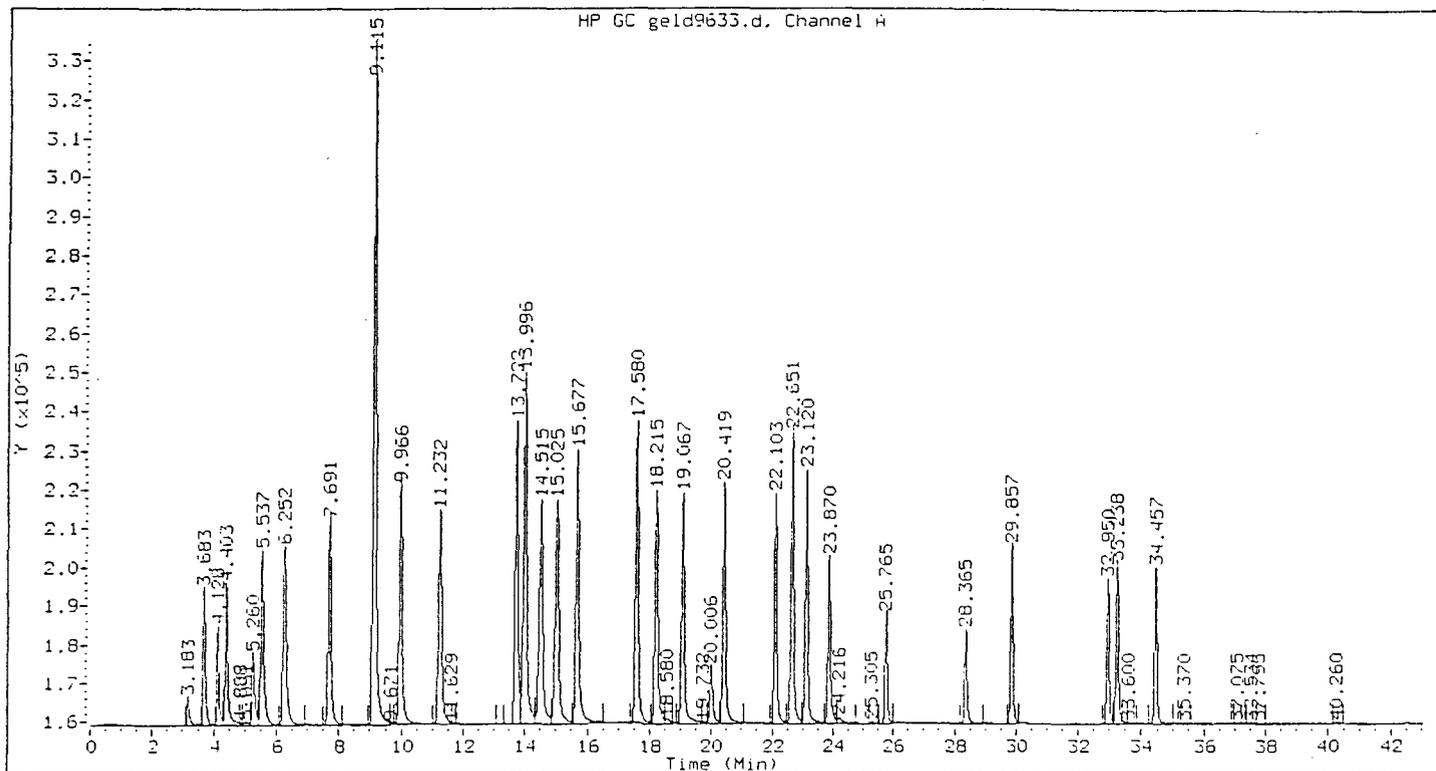
305393



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : 89298MS;;2500
 Lab ID : 89298MS
 Inj Date : 22-OCT-98 15:58:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 2500
 Sample Matrix : SOIL
 Sample Type: MS

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====

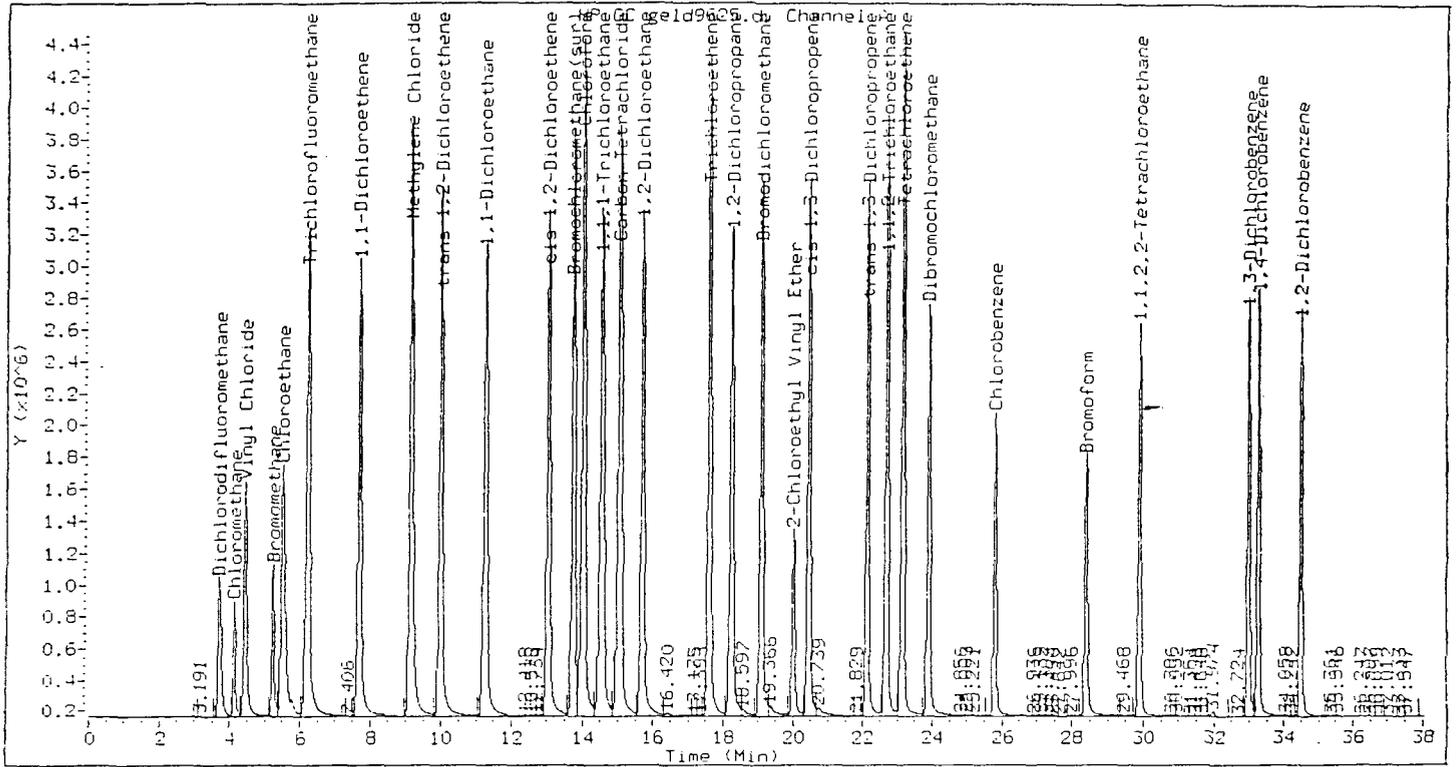
305394



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : 89298MSD;;2500
 Lab ID : 89298MSD
 Inj Date : 22-OCT-98 16:48:00
 Operator : KB
 Compd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 2500
 Sample Matrix : SOIL
 Sample Type: MSD

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====

305395



Method : /chem/VOAGC1.i/8021ELCD/10-21-98/22oct98.b/8021E.m
 Sample Info : 3701BS
 Lab ID : 3701BS
 Inj Date : 22-OCT-98 10:07:00
 Operator : KB
 Cpnd Sublist: 601
 Inst ID : VOAGC1.i
 Dil Factor : 50
 Sample Matrix : SOIL
 Sample Type: METHSPIKE

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
Dichlorodifluoromethane	3.697	3.701	0.004	30961506	17.413	2176.615
Chloromethane	4.124	4.146	0.012	15406584	19.135	2391.931
Vinyl Chloride	4.429	4.432	0.004	47098357	19.443	2430.398
Bromomethane	5.224	5.247	0.023	22575332	16.876	2109.449
Chloroethane	5.488	5.525	0.036	69861616	19.954	2481.756
Trichlorofluoromethane	6.204	6.229	0.024	116814151	20.639	2579.888
1,1-Dichloroethene	7.686	7.701	0.016	100380974	17.900	2237.533
Methylene Chloride	9.129	9.143	0.014	132917955	17.070	2133.741
trans-1,2-Dichloroethene	9.975	9.991	0.016	111761533	18.711	2338.818

305396

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/L)	FINAL (ug/Kg)
=====	=====	=====	=====	=====	=====	=====
1,1-Dichloroethane	11.247	11.262	0.015	116741723	18.908	2363.468
cis-1,2-Dichloroethene	13.028	13.043	0.015	106925906	20.210	2526.220
Chloroform	14.017	14.030	0.013	153336806	19.304	2412.956
1,1,1-Trichloroethane	14.535	14.548	0.013	132757724	19.345	2418.140
Carbon Tetrachloride	15.047	15.059	0.012	149683668	19.356	2419.496
1,2-Dichloroethane	15.694	15.707	0.013	106382271	18.427	2303.414
Trichloroethene	17.601	17.614	0.013	134152226	18.859	2357.341
1,2-Dichloropropane	18.239	18.252	0.012	106297303	19.168	2396.036
Bromodichloromethane	19.094	19.104	0.011	106194537	19.244	2405.505
2-Chloroethyl Vinyl Ether	20.017	20.030	0.013	35377991	19.699	2462.431
cis-1,3-Dichloropropene	20.442	20.453	0.011	100662568	19.877	2484.658
trans-1,3-Dichloropropene	22.127	22.139	0.012	93361750	20.126	2515.736
1,1,2-Trichloroethane	22.680	22.691	0.011	113801721	18.780	2347.534
Tetrachloroethene	23.152	23.163	0.010	134295007	19.703	2462.866
Dibromochloromethane	22.901	23.911	0.009	80247910	19.536	2442.039
Chlorobenzene	25.796	25.806	0.010	55316491	20.277	2534.626
Bromoform	28.396	28.405	0.009	49774022	18.651	2331.325
1,1,2,2-Tetrachloroethane	29.894	29.902	0.008	71659220	18.216	2277.002
1,3-Dichlorobenzene	32.988	32.997	0.010	69739483	19.778	2472.238
1,4-Dichlorobenzene	33.275	33.285	0.010	73274147	19.411	2425.403
1,2-Dichlorobenzene	34.497	34.505	0.008	70775806	19.480	2435.037
Bromochloromethane (sur)	13.735	13.752	0.017	114845332	28.306	3538.255

305397

(KB)

Analyses 8021e

Subdirectory: 2102298

DATE	PATA FILE ID	MS	SAMPLE	Std Lot #	JOB	QA	LRB	PH	W/V	D.F.	Sublist	Comments	Analyst
10/22/98	9624	9	G80020				66				601	G	
	9625	10	3701 B5	See			295					G	
	9626	11	66 275									G	
	9627	12	89298		I051	3701			1.06g / 10 ml	500x		G	
	9628	13	89300	P9	F053	3700			0.835 ml / 25 ml	100x		N6	(dilution factor) (high method only)
	9629	14	90821	27	I279	3706			0.04g / 10 ml	50x		G	
	9630	12	89298*		I051	3701			10.2g / 10 ml	10,000x		G	
	9631	12	89298*							2500x		G	
	9632	15	89298MS									G	
	9633	16	89298MS									G	
	9634	4	90822									G	
	9635	5	90823						10.2g / 25 ml	50x		G	
	9636	6	90824						10.7g / 25 ml			G	
	9637	9	G80020						11.0g / 25 ml			G	
	9638	6	G80020									NW	

PR: 2500x
dil for non-targets on pip!!!
Spike amt. dil below MDA

* aliquot for sample taken immediately after shaking product in methanol (so as to be evenly dispersed)

Kimberly Bolin

10/22/98

Continued on Page

Read and Understood By

305399

Signed

Date

Signed

Date